List of Contents

NUMBER 1

G. Talmage, S.-H. Shyu, M. J. Moeny, S. Tavener and **K. A. Cliffe** — 1 Inertial effects on electrically conducting fluids in the presence of transverse magnetic fields: an example problem

A. Valenti — 15 On a supplementary conservation law for heat propagation in a rigid dielectric immersed in an electromagnetic field

Y. Z. Chen and **X. Y. Lin** — 23 Potentials in plane elasticity by distribution of dislocation doublet or force doublet along a curve

Y. Xu, B. Moran and **T. Belytschko** — 33 Uncoupled characteristics of three-dimensional planar cracks

A. J. Chamkha and **H. M. Ramadan** — 49 Analytical solutions for free convection flow of a particulate suspension past an infinite vertical surface

R. M. Brach — 61 Formulation of rigid body impact problems using generalized coefficients

M. Marin and **C. Marinescu** — 73 Thermoelasticity of initially stressed bodies. Asymptotic equipartition of energies

A. E. Radwan — 87 Hydromagnetic instability of a streaming compressible cylindrical hollow jet

NUMBER 2

B. Singh and **R. Kumar** — 101 Reflection and refraction of micropolar elastic waves at a loosely bonded interface between viscoelastic solid and micropolar elastic solid

B. Singh and **R. Kumar** — 119 Reflection and refraction of plane waves at an interface between micropolar elastic solid and viscoelastic solid

E. Smith — 137 The geometry dependence of the K_r–L_r failure assessment curve: crack at the root of a sharp groove

J. H. Huang and **H.-K. Liu** — 143 On a flat ellipsoidal inclusion or crack in three-dimensional anisotropic media

M.-I. Char and **G.-C. Lee** — 157 Maximum density effects on natural convection of micropolar fluids between horizontal eccentric cylinders

PII: S0020-7225(98)00111-6

B. P. Huynh 171 A numerical investigation of non-isothermal extrusion through annular dies

W. Lin and **L. Librescu** 189 Thermomechanical postbuckling of geometrically imperfect shear–deformable flat and curved panels on a nonlinear elastic foundation

Letters in Applied and Engineering Sciences

J.-J. Shu and **I. Pop** 207 Transient conjugate free convection from a vertical flat plate in a porous medium subjected to a sudden change in surface heat flux

Announcements 215

NUMBER 3

A. M. Zenkour 219 Vibration of axisymmetric shear deformable cross-ply laminated cylindrical shells—a variational approach

G. Amendola 233 Asymptotic behaviour in linear thermoelastic materials

C.-H. Chen 251 Nonsimilar solutions for non-Darcy mixed convection from a nonisothermal horizontal surface in a porous medium

I. Birol, A. Hacinliyan and **N. Z. Perdahçi** 265 Simulating a dynamical system in the presence of a $1/f$ noise

D. C. Pham and **N. Phan-Thien** 273 Bounds and extremal elastic moduli of isotropic quasi-symmetric multicomponent materials

R. M. C. So and **S. P. Yuan** 283 Near-wall two-equation and Reynolds-stress modeling of backstep flow

M. Kumari 299 MHD flow over a wedge with large blowing rates

R. S. R. Gorla, H. S. Takhar and **A. Slaouti** 315 Magnetohydrodynamic free convection boundary layer flow of a thermomicropolar fluid over a vertical plate

S. A. Meguid and **Z. Zhong** 329 On the elliptical inhomogeneity problem in piezoelectric materials under antiplane shear and inplane electric field

H. Demiray 345 Nonlinear waves in a thick-walled viscoelastic tube filled with an inviscid fluid

Letters in Applied and Engineering Sciences

K. Vijayakumar 359 On some new conservation laws of a nonlinear reaction–diffusion equation

Announcements 363

NUMBER 4

D. C. Lagoudas and **Z. Ding**	367	Numerical computation of metal oxidation problems on bounded domains
H. Nozaki and **Y. Shindo**	383	Effect of interface layers on elastic wave propagation in a fiber-reinforced metal–matrix composite
D. C. Dobson and **F. Santosa**	395	Nondestructive evaluation of plates using eddy current methods
B. Fourcher and **K. Mansouri**	411	Theoretical study of periodic turbulent forced convection inside a parallel-plate channel
A. Hamdouni, K. Elamri, C. Vallee and **O. Millet**	421	Intrinsic formulation of compatibility conditions in nonlinear shell theory
I. T. Georgiou, A. K. Bajaj and **M. Corless**	431	Invariant manifolds and chaotic vibrations in singularly perturbed nonlinear oscillators
G. Profilo, G. Soliani and **C. Tebaldi**	459	Some exact solutions of the two-dimensional Navier–Stokes equations
H. H. Sherief and **H. A. Saleh**	473	A problem for an infinite thermoelastic body with a spherical cavity
R. Peyroux, A. Chrysochoos, C. Licht and **M. Löbel**	489	Thermomechanical couplings and pseudoelasticity of shape memory alloys
M. Hori and **H. Morihiro**	511	Micromechanical analysis on deterioration due to freezing and thawing in porous brittle materials
Announcement	523	

NUMBERS 5–6

A. C. Eringen	525	A mixture theory of electromagnetism and superconductivity
A. Danescu	545	Design isotropic materials using anisotropic components via homogenization
S. Bhattacharyya and **A. Pal**	555	Axisymmetric vortex breakdown in a filled cylinder
A. Charalambopoulos, D. I. Fotiadis and **C. V. Massalas**	565	Free vibrations of the viscoelastic human skull
S. Sieniutycz	577	Nonlinear thermokinetics of maximum work in finite time
M. P. Vonderwell and **D. N. Riahi**	599	Resonant instability mode triads in the compressible boundary layer flow over a swept wing

M. R. Abd. El-Salam and **M. H. Shehata** 625 The melting process with moving boundary for mixture consisting of two fluids

S. K. Roychoudhuri and **S. Banerjee (Mukhopadhyay)** 635 Magneto-thermo-elastic interactions in an infinite visco-elastic cylinder of temperature-rate dependent material subjected to a periodic loading

İ. T. Gürgöze and **M. S. Dokuz** 645 An equilibrium solution for the Boussinesq problem for a mixture of an elastic solid and a fluid in an infinite half-space

M. Ciarletta 655 On mixtures of nonsimple elastic solids

S. Asghar and **T. Hayat** 669 Diffraction of a spherical electromagnetic wave by a perfectly conducting strip in a biisotropic medium

S. K. Tomar, R. Kumar and **V. P. Kaushik** 683 Wave propagation of micropolar elastic medium with stretch

NUMBERS 7–8

L. R. Dupré, R. Van Keer and **J. A. A. Melkebeek** 699 A computational model for the iron losses in rotating electrical machines

A. Charalambopoulos, D. I. Fotiadis and **C. V. Massalas** 711 Free vibrations of a double layered elastic isotropic cylindrical rod

E. Smith 733 Scaling effects associated with the cohesive zone description of quasi-brittle materials

T. Jongen and **T. B. Gatski** 739 General explicit algebraic stress relations and best approximation for three-dimensional flows

M. Fabrizio, G. Gentili and **D. W. Reynolds** 765 On rigid linear heat conductors with memory

N. Ghaddar 783 Analytical model of thermal energy conversion to electrical energy via a thermosyphonic magnetohydrodynamic generator

M. A. Kattis and **E. Providas** 801 Two-phase potentials in anisotropic elasticity: antiplane deformation

M. El Mouden, M. Cherkaoui, A. Molinari and **M. Berveiller** 813 The overall elastic response of materials containing coated inclusions in a periodic array

Y. C. Gao 831 Large strain analysis of a rubber wedge compressed by a line load at its tip

B. A. Jubran, M. N. Hamdan and **N. H. Shabaneh** 843 Wavelet and chaos analysis of flow induced vibration of a single cylinder in cross-flow

B. Singh and **R. Kumar** 865 Reflection of plane waves from the flat boundary of a micropolar generalized thermoelastic half-space

B. Singh and **R. Kumar** 891 Wave propagation in a generalized thermo-microstretch elastic solid

P. D. S. Verma, A. Kapoor and **J. S. Massoi** 913 Magnetic fluid flow in a two dimensional diverging channel

NUMBER 9

I. Suliciu 921 On the thermodynamics of rate-type fluids and phase transitions. I. Rate-type fluids

I. Suliciu 949 On the thermodynamics of rate-type fluids and phase transitions. II. Phase transitions

E. Pruchnicki 973 Overall properties of thin hyperelastic plate at finite strain with edge effects using asymptotic method

Y. Shindo, F. Narita and **H. Sosa** 1001 Electroelastic analysis of piezoelectric ceramics with surface electrodes

B. T. Chen, C. T. Hu and **S. Lee** 1011 Dislocations near a sliding interface

M. Firdaouss, J.-L. Guermond and **D. Lafarge** 1035 Some remarks on the acoustic parameters of sharp-edged porous media

A. Charalambopoulos, D. I. Fotiadis and **C. V. Massalas** 1047 The effect of geometry on the dynamic characteristics of the human skull

NUMBER 10

H. Demiray 1061 Nonlinear wave modulation in a fluid filled thick elastic tube

S. Chakravarty and **A. Kr. Sannigrahi** 1083 An analytical estimate of the flow-field in a porous stenotic artery subject to body acceleration

V. K. Kalpakides 1103 Isovector fields and similarity solutions of nonlinear thermoelasticity

N. P. Kruyt and **L. Rothenburg** 1127 Statistical theories for the elastic moduli of two-dimensional assemblies of granular materials

S. Pagano, P. Alart and **O. Maisonneuve** 1143 Solid–solid phase transition modelling. Local and global minimizations of non-convex and relaxed potentials. Isothermal case for shape memory alloys

P. G. Siddheshwar and **S. Pranesh** 1173 Magnetoconvection in a micropolar fluid

NUMBER 11

P. G. Siddheshwar and **S. Pranesh** 1183 Effect of a non-uniform basic temperature gradient on Rayleigh–Benard convection in a micropolar fluid

R. K. Pramanik, S. C. Pal and **M. L. Ghosh** 1197 Transient response due to a pair of antiplane point impact loading on the faces of a finite griffith crack at the bimaterial interface of anisotropic solids

I. Dimitrienko 1215 Effect of finite deformations of combustible porous media on dynamical processes of internal heat–mass transfer

H.-G. Yoon, J. Peddieson Jr. and **K. R. Purdy** 1235 Mathematical modeling of a generalized Rijke tube

F. M. F. Simões and **J. A. C. Martins** 1265 Instability and ill-posedness in some friction problems

K. T. Kim, H. G. Kim and **H. M. Jang** 1295 Densification behavior and grain growth of zirconia powder compact under high temperature

G. Emanuel 1313 Bulk viscosity in the Navier–Stokes equations

NUMBERS 12–14

CHANDRASEKHAR MEMORIAL VOLUME

ix Preface

xi Brief biography of S. Chandrasekhar

xiii Publications by S. Chandrasekhar

xxxiii Publications of S. Chandrasekhar (Post 1991)

ERINGEN MEDAL LECTURE

G. A. Glatzmaier and **P. H. Roberts** 1325 Dynamo theory then and now

SECTION I: THE PHYSICS OF ISAAC NEWTON'S PRINCIPIA

J. W. Dauben 1339 Ancient Chinese mathematics: the 九章算術 (*Jiu Zhang Suan Shu*) vs Euclid's *Elements*. Aspects of proof and the linguistic limits of knowledge

J. B. Brackenridge 1361 The role of curvature in Newton's dynamics

SECTION II: SOME HISTORICAL ASPECTS OF SCIENCE

G. E. Smith 1377 Newton's study of fluid mechanics

M. Nauenberg 1391 Newton's unpublished perturbation method for the lunar motion

N. R. Lebovitz 1407 The mathematical development of the classical ellipsoids

SECTION III: STABILITY, MHD, ASTROPHYSICS

E. Knobloch 1421 Rotating convection: recent developments

C. D. Andereck, P. W. Colovas, M. M. Degen and **Y. Y. Renardy** 1451 Instabilities in two layer Rayleigh–Bénard convection: overview and outlook

R. E. Ecke and **Y. Liu** 1471 Traveling-wave and vortex states in rotating Rayleigh–Bénard convection

C. J. Swanson 1481 Taylor–Couette flow of helium II

SECTION IV: STABILITY AND SUPERCONDUCTIVITY

M. W. Coffey 1493 Magnetic force microscopy of superconductors

S.-A. Zhou 1511 On effects of superelectron inertia and flux-quantization in moving deformable superconductors

SECTION V: RADIATION, TRANSPORT, STATISTICAL MECHANICS

Y. Yener and **İ. Tarı** 1535 Galerkin method in radiative transfer

A. H. Karp 1551 Recent advances in the spherical harmonics method

M. P. Mengüç and **S. Manickavasagam** 1569 Characterization of size and structure of agglomerates and inhomogeneous particles via polarized light

G. C. Pomraning 1595 Radiative transfer and transport phenomena in stochastic media

R. D. M. Garcia and **C. E. Siewert** 1623 The F_N method in atmospheric radiative transfer

S. T. Thynell 1651 Discrete-ordinates method in radiative heat transfer

R. Viskanta 1677 Overview of convection and radiation in high temperature gas flows

R. Siegel 1701 Transient effects of radiative transfer in semitransparent materials

NUMBER 15

M. F. Fu, J. Saczuk and **H. Stumpf** 1741 On fibre bundle approach to a damage analysis

F. Costanzo 1763 A continuum theory of cohesive zone models: deformation and constitutive equations

P. Steinmann and **I. Carol** 1793 A framework for geometrically nonlinear continuum damage mechanics

F. Cakoni and **G. Dassios** 1815 The coated thermoelastic body within a low-frequency elastodynamic field

L. Drăguşin 1841 Bifurcations in the mechanics of hypoelastic composite materials

Announcement 1865

I *List of Contents and Author Index for Volume 36 (1998)*